

# EUROPEAN PATENT OFFICE

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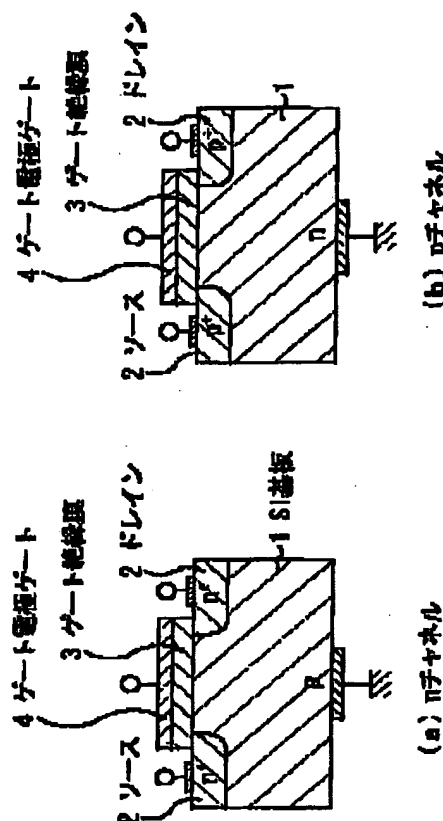
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TITLE : SEMICONDUCTOR DEVICE



**ABSTRACT :** **PROBLEM TO BE SOLVED:** To obtain a semiconductor device exhibiting excellent compatibility with the structure of conventional Si-MOS transistor and applicable to optical interconnect in which high emission efficiency can be attained easily and surely.

**SOLUTION:** An MIS type light emitting element is constituted similarly to an MIS type (MOS type) transistor. A gate insulation film 3 is formed by adding a light emitting substance, e.g. a semiconductor nanocrystal of Si, SiGe or Ge, polycrystal or microcrystal of a direct transition semiconductor, a rare earth element of Er or Eu, or a fluorescent substance of ZnS:Mn, or the like. Light is emitted from the gate insulation film 3 by applying a specified voltage to the source/drain 2 and a specified bias to the gate electrode 4.

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Si-MOS型発光素子